

REMARKS

Specification

The first paragraph of Detailed Description of the Invention is currently amended to correct a typographical informality (“form” --> “from”). The Applicant believes that no new matter is introduced by way of this amendment.

Claims

Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over cited prior art and further in view of Willborn et al. (US 6,529,850).

Claim 1 discloses a method for estimating a movement speed of a mobile unit in a mobile radio communication system. The method includes the steps of: receiving a first signal corresponding to a signal transmitted from the mobile unit; obtaining a second signal by calculating an envelope of the first signal; obtaining a third signal by multiplying the second signal by a carrier which includes a carrier frequency; calculating a correlation coefficient of the third signal; obtaining a Doppler frequency of the correlation coefficient referring to a corresponding relationship between the correlation coefficient and the Doppler frequency; and estimating the movement speed of the mobile unit according to the Doppler frequency.

One of the characteristics of claim 1 is the step of obtaining a third signal by multiplying the second signal by a carrier. The second paragraph of Detailed Description of the Invention and FIG. 4 show an implementation of the step. For example, a third signal $Y(t)$ can be obtained by multiplying the second signal by a carrier, and the implementation indicates an example of the carrier as $\cos(2\pi f_D t)$. In other words, $Y(t)$ can be obtained by:

$$Y(t) = X(t) \cos(2\pi f_D t)$$

wherein f_D between 8 to 60 Hz.

As the Examiner indicates, the cited prior art fails to teach this step. Furthermore, Willborn also fails to teach it. Willborn simply discloses a velocity estimator having a multiplier for scaling a received signal by a scaling factor, which represents the reverse of an AGC gain. In FIG. 6 of Willborn, each of the multipliers 622 and 624 is configured to couple the scaling factor (FIG. 6, Col. 2, Lines 45-57, and Col. 9 Lines 15-22). More particularly, the scaling factor is a value, i.e. the reverse of an AGC gain, but not a carrier with a certain frequency, and the outputs of the multipliers 622 and 624 are signals that represent the in phase and quadrature pilot signals with the effects of the AGC circuit removed (Col. 9, Lines 22-25) but not signals shifting their frequency via a carrier. Accordingly, at least this limitation of claim 1 is not taught by any combination of the cited prior art and Willborn. The Applicant therefore submits that claim 1 is patentable.

Claim 5 is also rejected under 35 U.S.C. 103(a) as being unpatentable over cited prior art and further in view of Willborn. The Applicant traverses this rejection.

Claim 5 discloses a system for estimating a movement speed of a mobile unit. The system includes a receiving unit for receiving a first signal corresponding to a signal transmitted

from the mobile unit, a calculating unit for calculating an envelope of the first signal to obtaining a second signal, a modulating unit for multiplying the second signal by a carrier to obtain a third signal, wherein the carrier includes a carrier frequency, and an estimating unit for estimating the movement speed of the mobile unit according to the third signal. The cited prior art and Willborn fail to teach a system for estimating a movement speed of a mobile unit, which includes a modulating unit for multiplying a signal by a carrier to obtain another signal for estimating the movement speed. Therefore, the Applicant submits that claim 5 is patentable.


Based on the above statements, the dependent claims 2-4 and 6-9 need not be written in independent form including all of the limitations of the base claim and any intervening claims. The Applicant submits that claims 1-9 are all patentable.

CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. The Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and completed response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment and allowance of all pending claims is respectfully requested.

Respectfully submitted,

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